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Subj: ERRATA SHEET FOR DRAFT FINAL ECOLOGICAL RISK ASSESSMENT VALIDATION STUDY, PARCEL E, HUNTERS POINT SHIPYARD, SAN FRANCISCO, CALIFORNIA

✓Encl: Errata Sheet for the Draft Final Ecological Risk Assessment Validation Study Report, Parcel E, Hunters Point Shipyard, San Francisco, California dated March 14, 2000

1. Please find enclosed a errata sheet that addresses discrepancies pertaining to Section 11.5 of the Draft Final Ecological Risk Assessment Validation Study, Parcel E, Hunters Point Shipyard, San Francisco, California
2. If you have any questions regarding this enclosure, please contact Jim Baker at (713) 520-7667, extension 230, FAX (713) 524-9866.

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STUDY REPORT, PARCEL E, HUNTERS POINT SHIPYARD, SAN FRANCISCO,
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ERRATA SHEET
DRAFT FINAL ECOLOGICAL RISK ASSESSMENT VALIDATION STUDY
PARCEL E, HUNTERS POINT SHIPYARD
SAN FRANCISCO, CALIFORNIA

11.5 RISK SUMMARY BY CHEMICAL OF POTENTIAL CONCERN

Upper HQs and lower HQs for the following COPCs were less than 1 for all for receptors at all stations: arsenic, manganese, total chlordanes, total PCBs, LMW and HMW PAHs, and dioxins and furans. COPCs with upper HQs or lower HQs greater than 1 at any station for any receptor are discussed below.

11.5.1 Cadmium

Cadmium upper HQs were greater than 1 at two stations (IR02SS303 and IR02SS306) for adult and juvenile house mice. Upper HQs for the adult house mouse at these two stations were ~~2.05~~ 1.90 and ~~4.73~~ 1.68, respectively. Cadmium concentrations in soil at these two stations (~~14.04~~ and 13.0 and ~~6.85~~ 6.36 mg/kg, respectively) were elevated relative to the other 10 stations, which had cadmium concentrations of less than 1 mg/kg. Cadmium upper HQs for the kestrel and red-tailed hawk were less than 1 at all stations. Results of the risk characterization indicate that cadmium does not pose significant risk to house mice.

11.5.2 Copper

Copper was frequently detected in soil and tissue. Copper upper HQs for adult and juvenile house mice and red-tailed hawks were less than 1 at all stations, indicating that copper is not associated with risk to these receptors. Copper upper HQs for the kestrel were greater than 2 at 9 of the 12 stations. Red-tailed hawk HQs for copper were all below 1. In general, existing background conditions seemed to pose more risk to receptors than site-specific conditions, except at Stations IR02SS303, IR02SS306, and IR01SW2. This indicates that at most stations, site conditions are associated with less risk than background conditions at HPS. Results of the risk characterization indicate that copper poses some risk to kestrels at most stations, and potentially significant absolute risk at IR02SS303 and IR02SS306, where copper was detected in soil at concentrations of ~~3,407.16~~ 3,151.17 and ~~2,096~~ 1,947.6 mg/kg, respectively.

11.5.3 Lead

Lead was frequently detected in soil and tissue, and lead upper HQs were greater than 1 at all 12 stations for mice (adult and juvenile) and kestrels. The lead upper HQ for the red-tailed hawk was greater than 1 at one station (IR01SW2). Lead lower HQs for kestrels were greater than 1 at two stations (IR02SS303 and IR02SW1).

Upper HQs were consistently higher for mice (up to ~~40,400~~ 9,800) than for kestrels (up to ~~2,080~~ 2,030), although lower HQs for mice never exceeded 1. This is most likely a function of the highly conservative lead low TRV and the wide range (5 orders of magnitude) between the low and high lead TRVs for the mouse. Results of the risk characterization indicate that lead poses potentially significant risk to mice and kestrels at three stations (IR02SS303, IR02SS306, and IR01SW2) where lead was detected in soil at concentrations ranging between ~~6,575~~ 5,846.6 and ~~4,6271~~ 511.6 mg/kg. Although the kestrel lower HQ for lead was greater than 1 at IR01SW1, lead at this station was not determined to pose high potential risk to kestrels, because of inconsistencies in tissue analytical results for that station and uncertainties related to compositing invertebrate tissue between this station and IR01SW2, which had very dissimilar concentrations of COPCs in soil (see Section 11.6.4).

11.5.4 Mercury

Mercury HQs were below 1 at all stations for adult and juvenile house mice and red-tailed hawks. Mercury upper HQs for kestrels were greater than 1 at two stations (IR01SW1 and IR01PH1). However, dose estimates at these stations are highly uncertain, because of a high frequency of non-detects in soil and tissue; non-detects or missing data represent two of the four sample media used in the dose model at both stations. Results of the risk characterization indicate that based on inconclusive data and upper HQs calculated (~~4.17~~ 1.40 and ~~4.39~~ 1.13), mercury is not likely to be associated with risk to kestrels.

11.5.5 Nickel

Nickel was frequently detected in soil and tissue. Nickel upper HQs were greater than 1 at every station for adult house mice, 10 of the 12 stations for juvenile house mice, and 1 of the 12 stations for the kestrel. Red-tailed hawk HQs for nickel were all below 1. Results of the risk characterization indicate that nickel poses some risk to mice at IR14B009, IR02SS303, IR02SS306, and IR01SW2, where nickel was detected in soil at concentrations ranging from ~~307.44~~ 268.76 to ~~4,152.44~~ 1,037.89 mg/kg. With the exception of IR14B009 and IR02SS306, site conditions pose less risk than existing background conditions at HPS. Results of the risk characterization indicate that nickel poses some risk to kestrels (IR14B009).

11.5.6 Selenium

Red-tailed hawk HQs for selenium were all below 1. Selenium upper HQs for the kestrel were greater than 1 at 7 of the 12 stations, although these upper HQs were close to 1, indicating some absolute risk to kestrels at these stations. The selenium upper HQ for the adult mouse (but not the juvenile mouse) was greater than 1 at one station (IR15B016). Selenium data are characterized by some uncertainty because of many non-detect samples in soil and tissue. At 5 of the 12 stations (IR14B009, IR14SS09, IR11SS18, IR11BLDG, and IR15B016), selenium was not detected in soil but was detected in tissue, which may indicate that biomagnification is occurring. However, soil non-detects make soil data at these stations somewhat inconclusive as a way of determining risk. Additionally, high mobility of some collected taxa (such as flying invertebrates, and to a lesser degree, mice and reptiles) means that tissue concentrations are not likely to accurately reflect a link between a single soil exposure point concentration (EPC) and tissue concentrations. Also, because of the heterogeneity of fill soils, soil analytical data for any given station are not necessarily reflective of conditions over a wider area. Results of the risk characterization indicate some risk to the mouse and the kestrel at those stations where upper HQs are greater than 1.

11.5.7 Zinc

Zinc upper HQs for adult and juvenile mice and kestrels were greater than 1 at 6 of the 12 stations. Zinc was detected in soil at these stations, with concentrations ranging ~~95.25~~ 71.3 to ~~4,183.56~~ 4,023.3 mg/kg. Red-tailed hawk HQs for zinc were all below 1. Results of the risk characterization indicate that because zinc upper HQs are mostly less than 1 for both the mouse and the kestrel, zinc poses some risk to these receptors.

11.5.8 Total Dichlorodiphenyltrichloroethanes

Total DDTs exceeded the kestrel low TRV at every station except IR01SW1. Adult and juvenile house mice and red-tailed hawk HQs were all below one. The dose estimate for total DDTs is somewhat uncertain because of elevated detection limits in tissue (especially invertebrate tissue). The use of half the detection limit in the dose model for non-detects produces high doses for stations with non-detect samples. HQs calculated using only detected concentrations were all less than 1. Results of the risk characterization indicate that based on this high level of uncertainty and upper HQs calculated using half the detection limits for non-detect samples, DDTs are not likely to be associated with risk to kestrels.

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